Serotonin Present in Cerebral Cortex Neurons

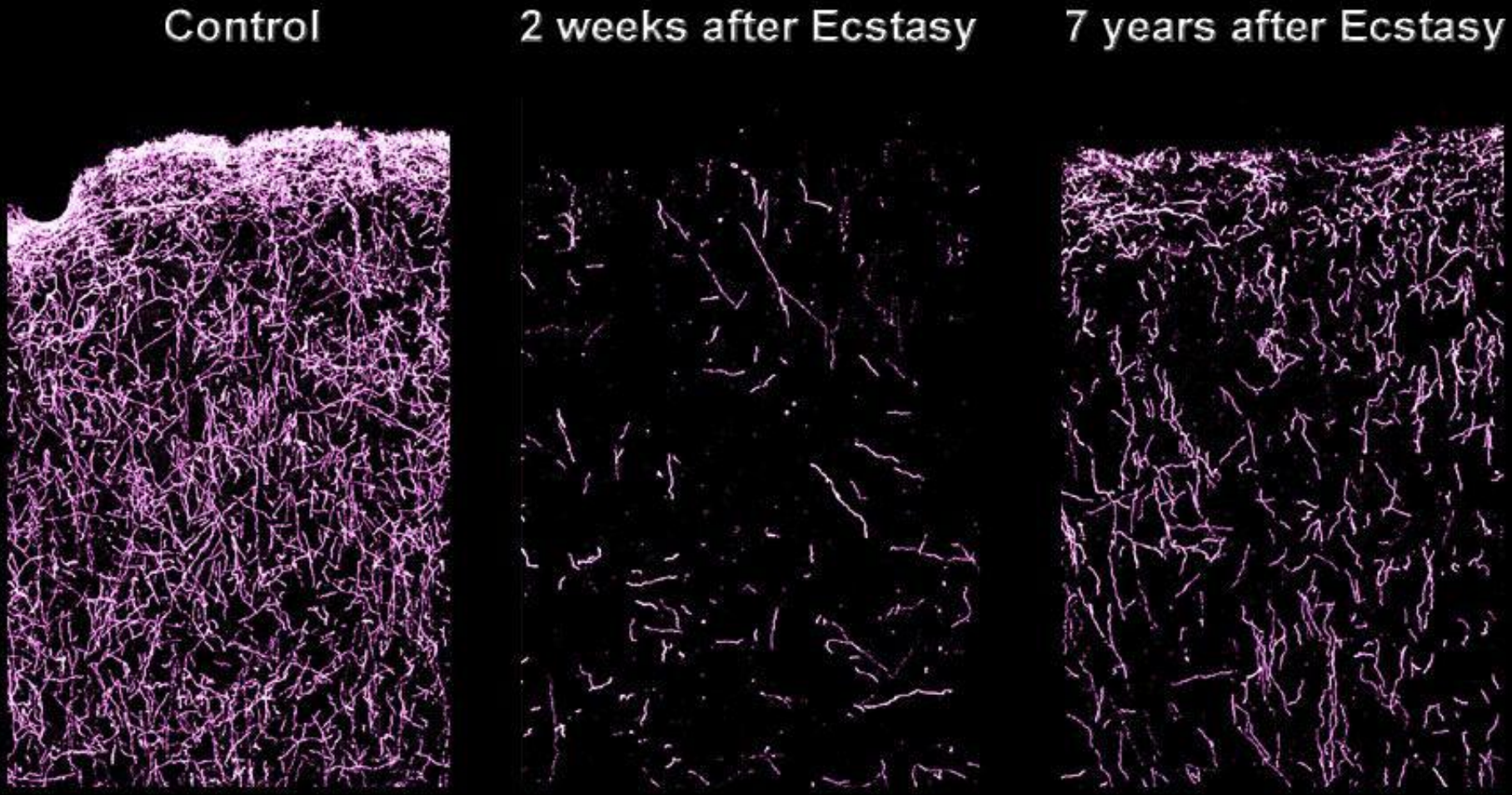
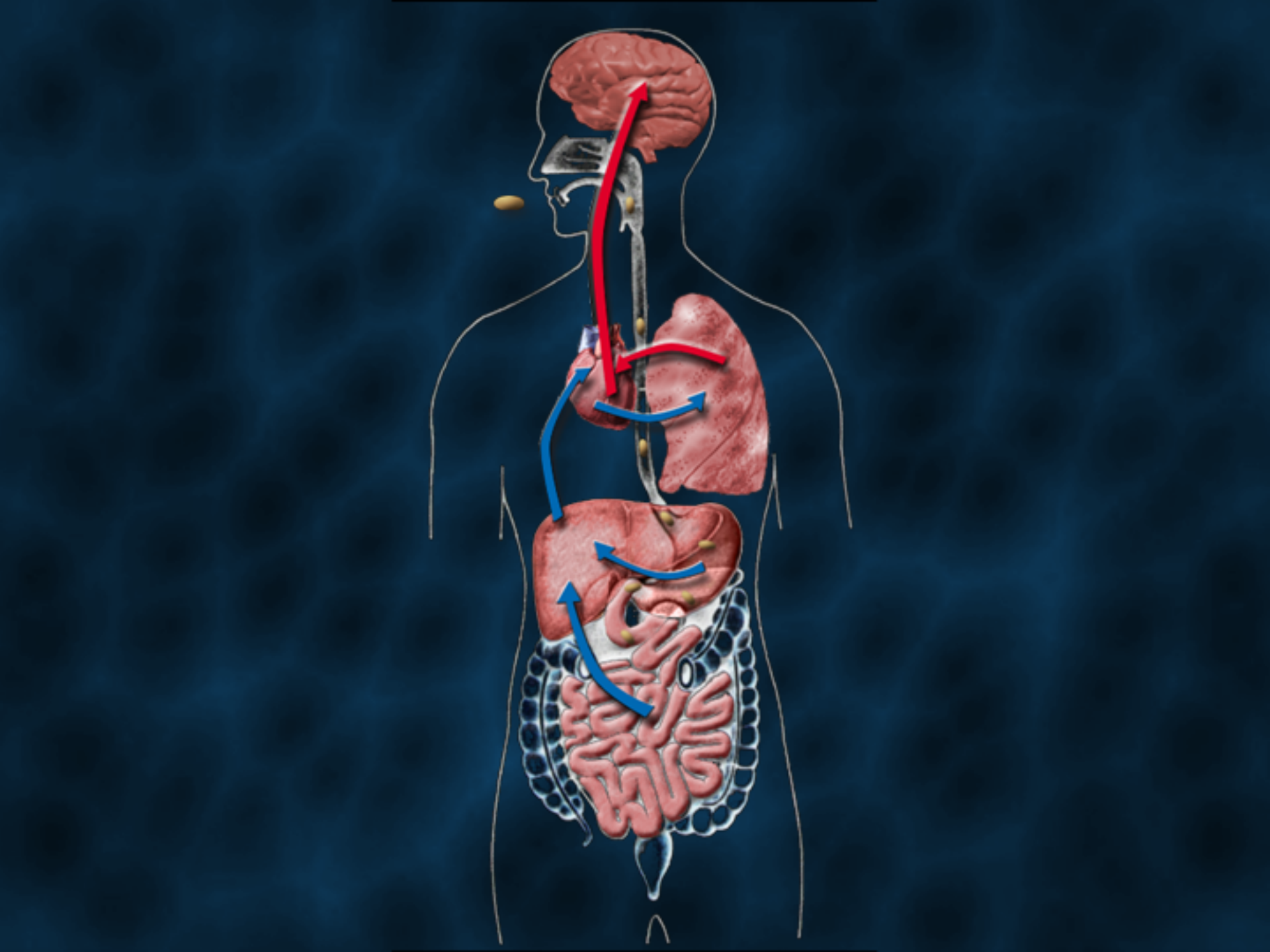


Image courtesy of Dr. GA Ricaurte, Johns Hopkins University School of Medicine

Defining Ecstasy

A derivative of amphetamine

MDMA, XTC, E, essence, Adam



What we know:

Ecstasy has short-term & long-term effects on the brain

Short term:

changes brain chemistry, behavior

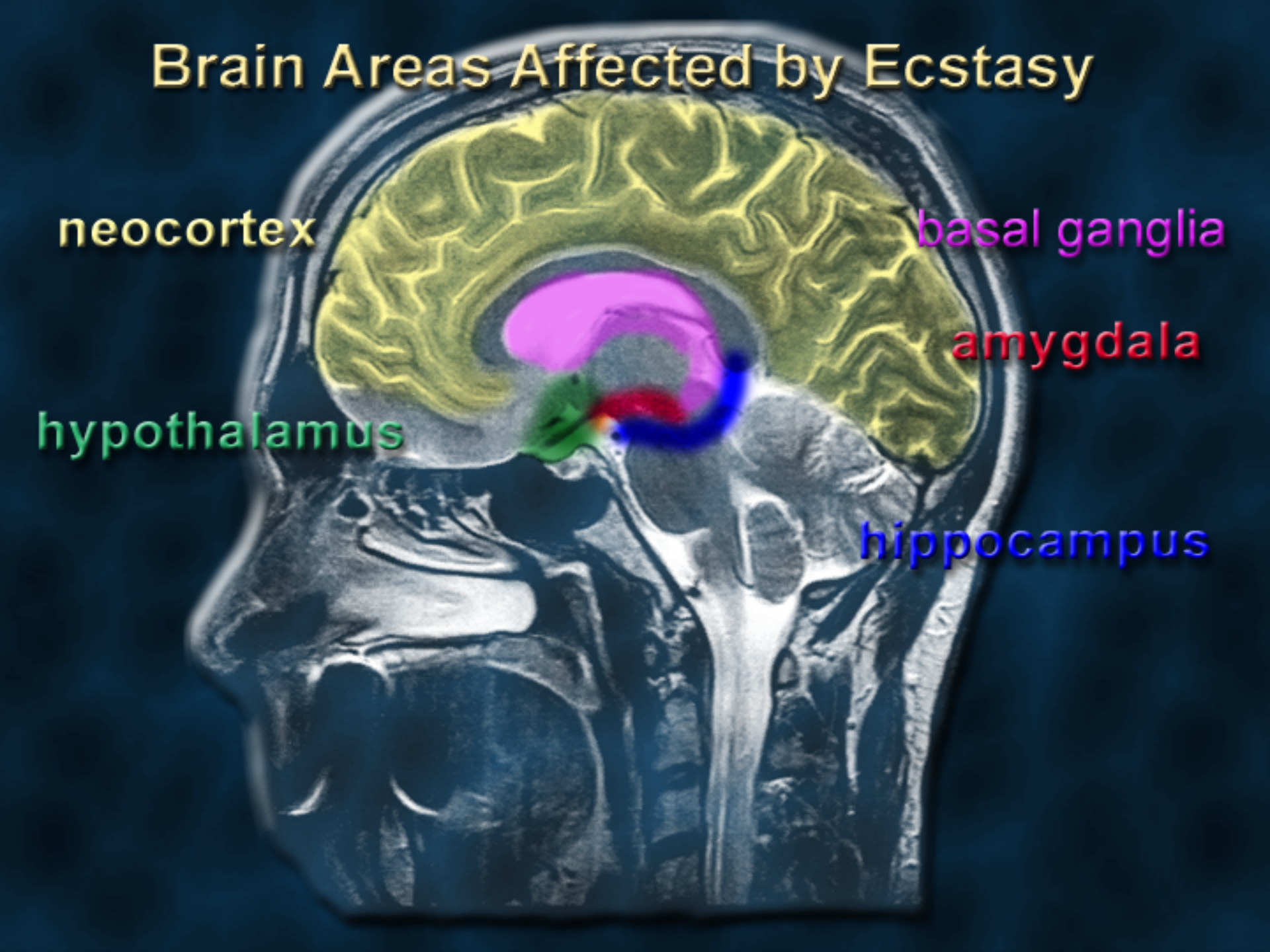
Long term:

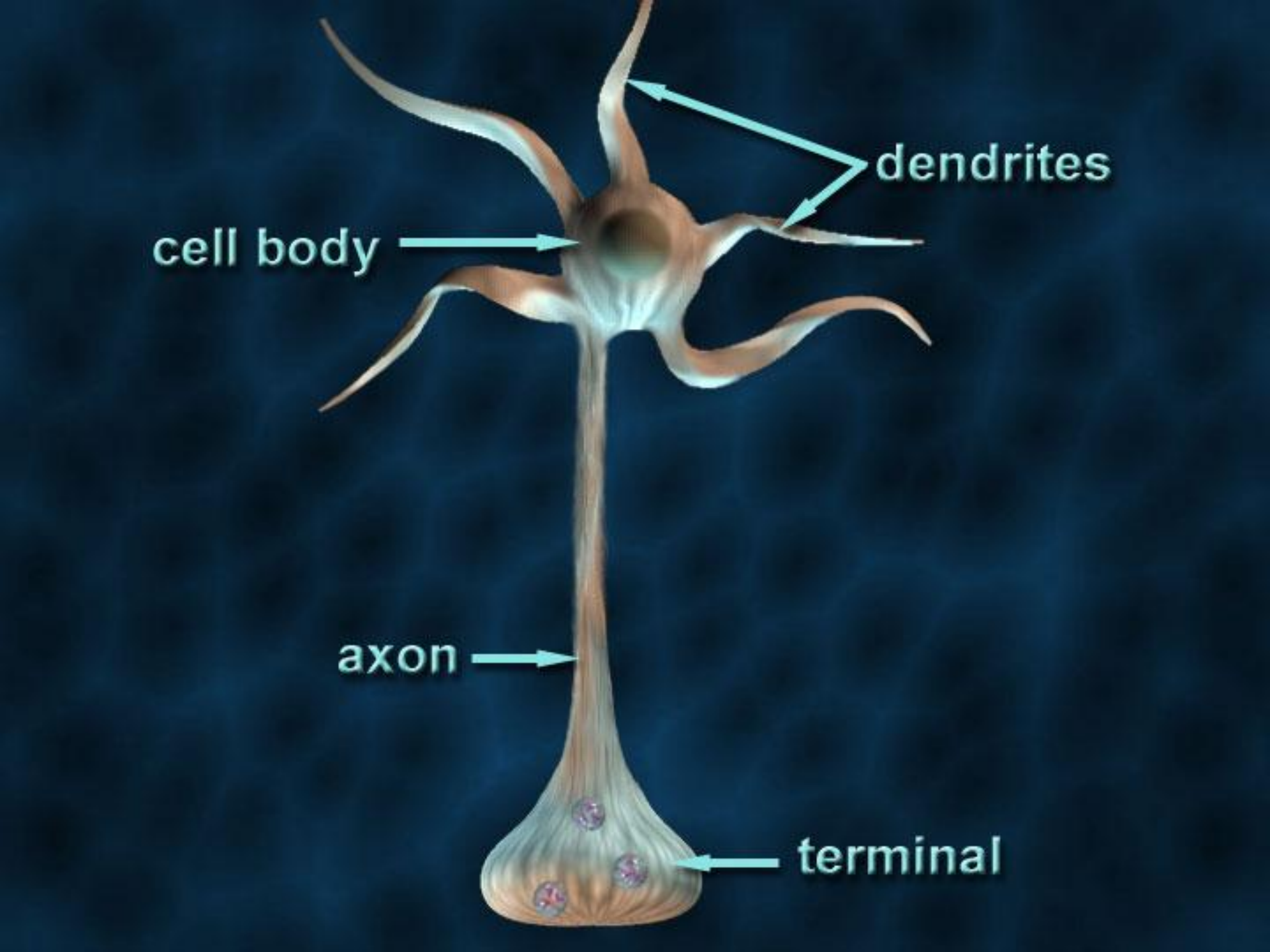
changes brain structure, behavior

How Do We Know ?

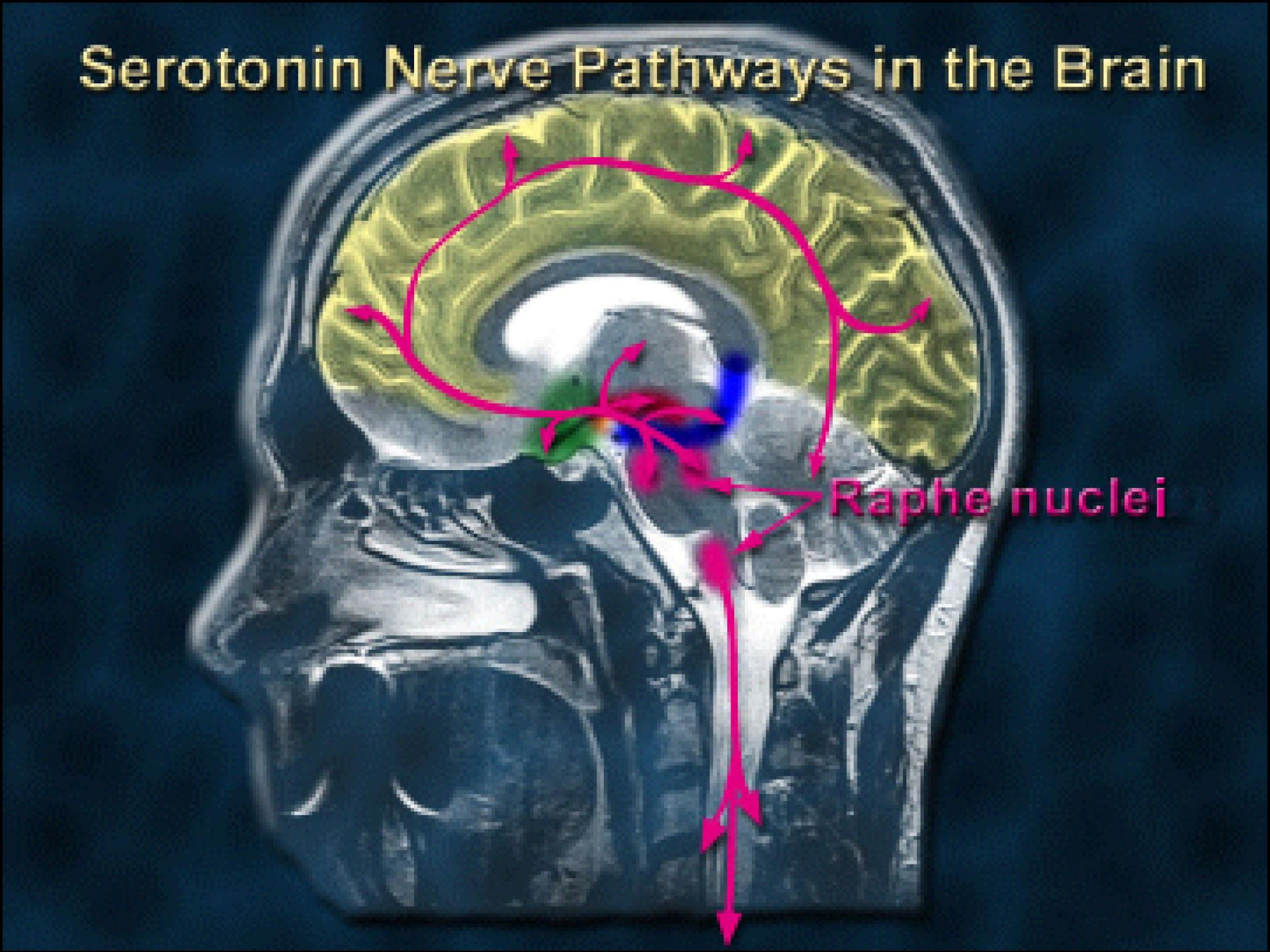
Scientific research in animals and humans

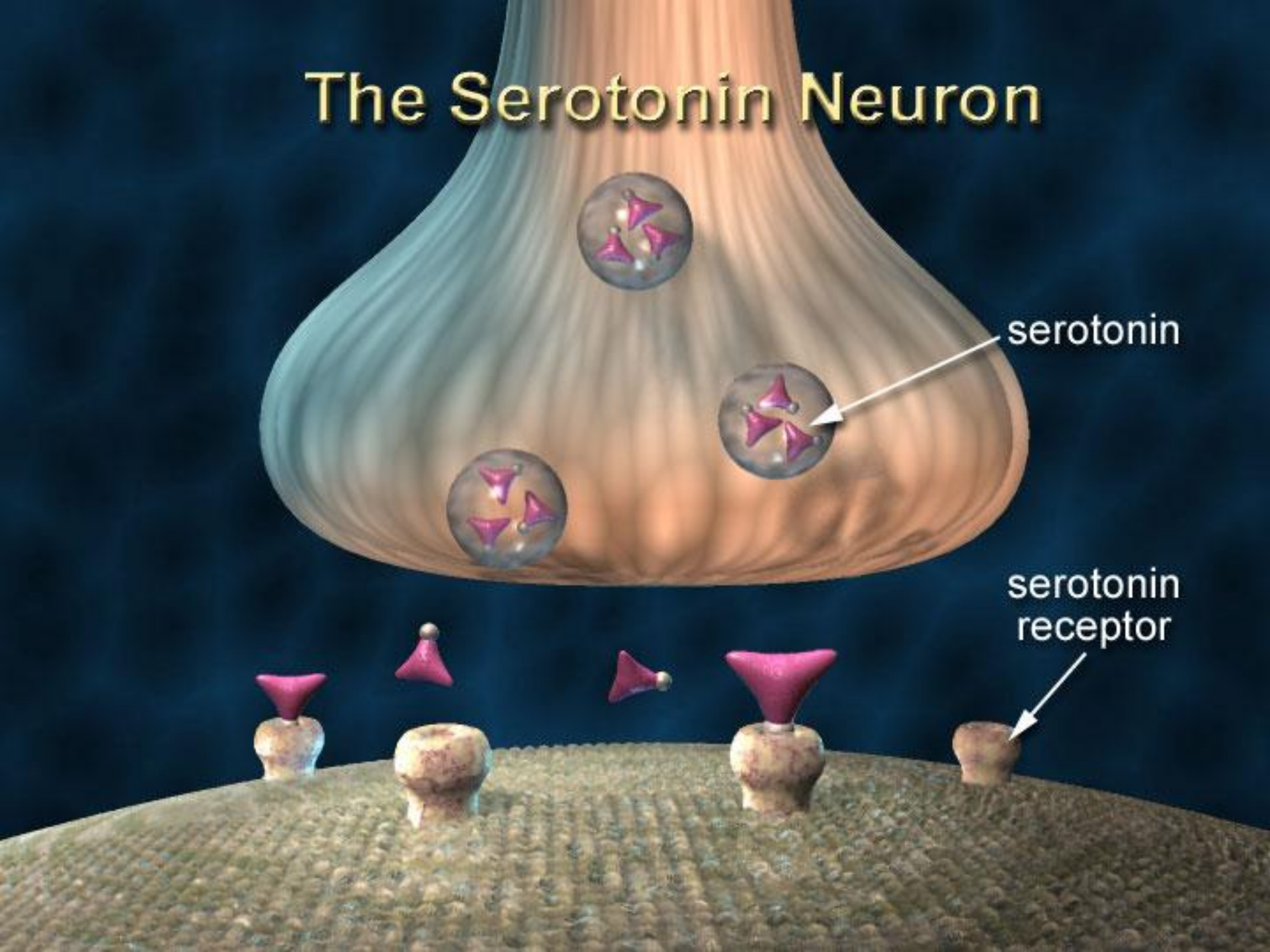
Brain Areas Affected by Ecstasy

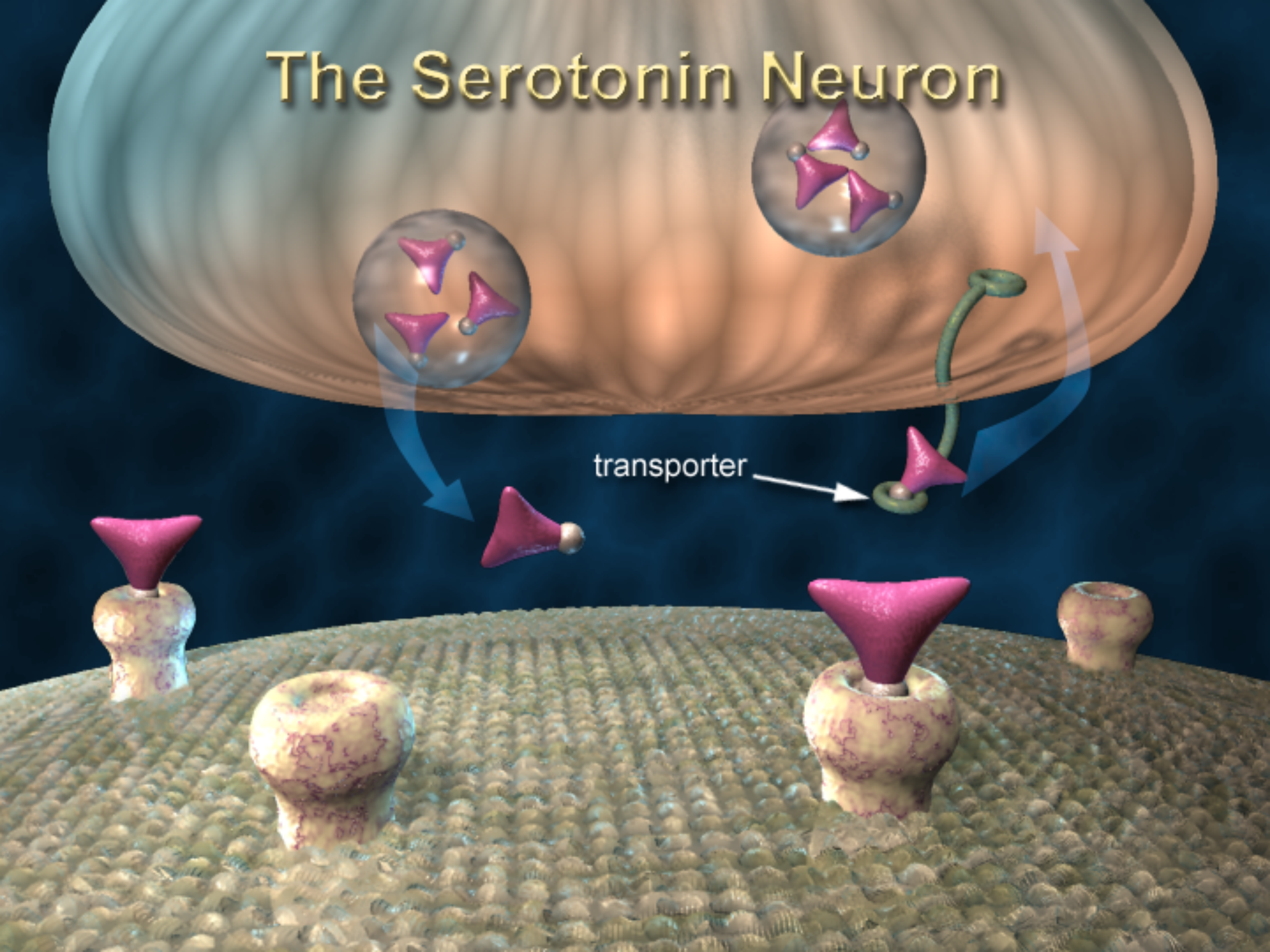


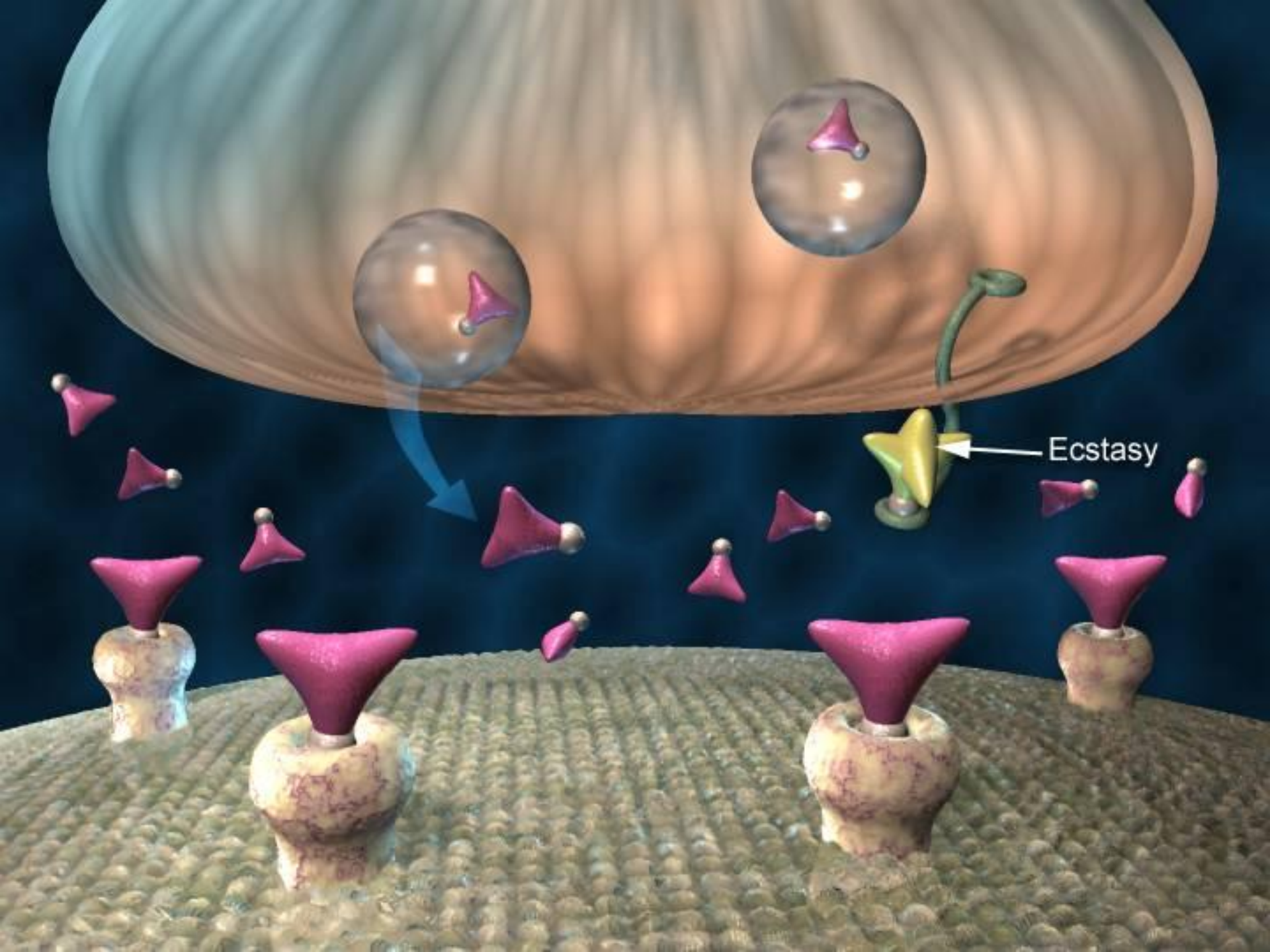

dendrites
cell body
axon
terminal

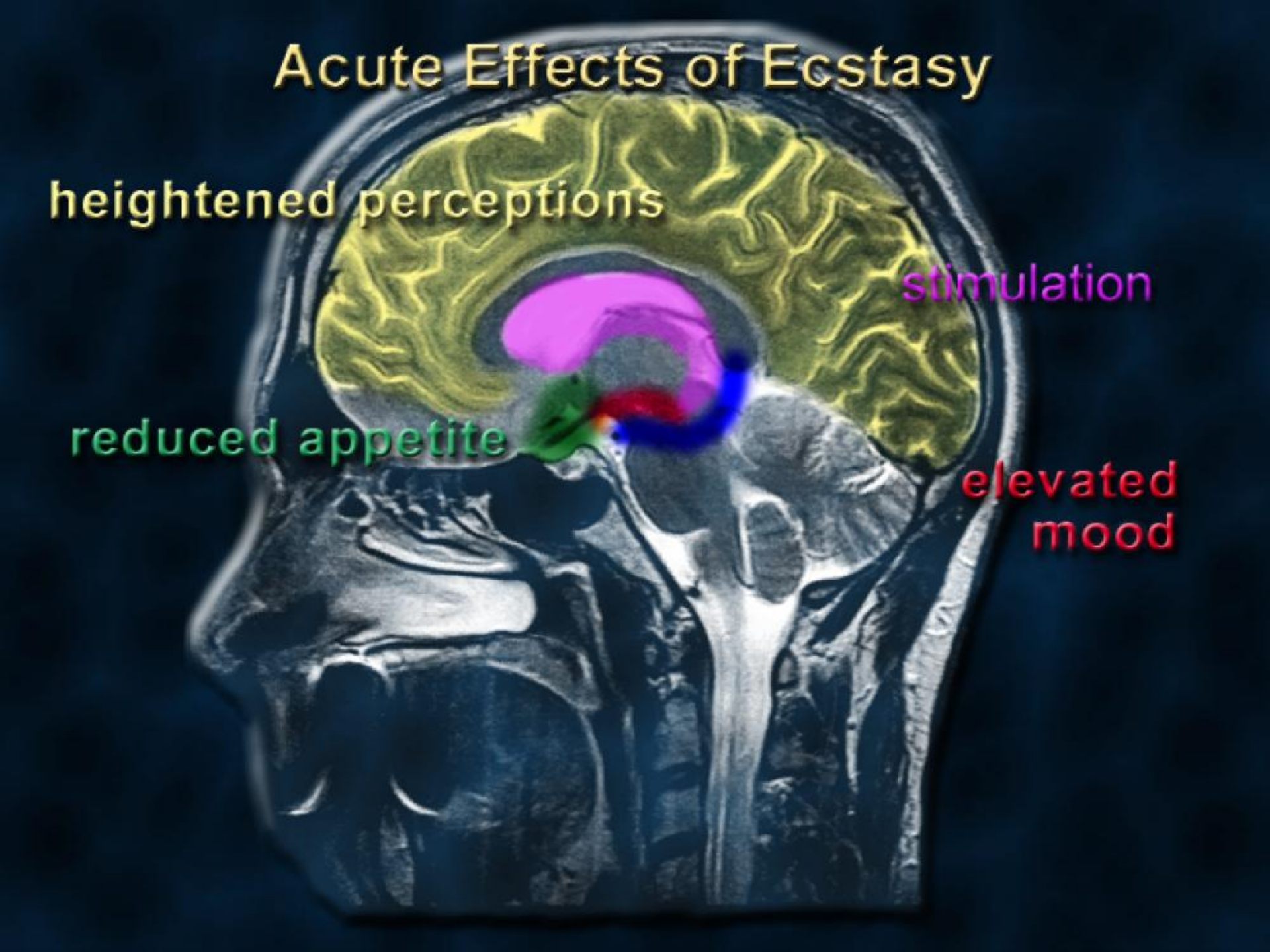
Serotonin Nerve Pathways in the Brain

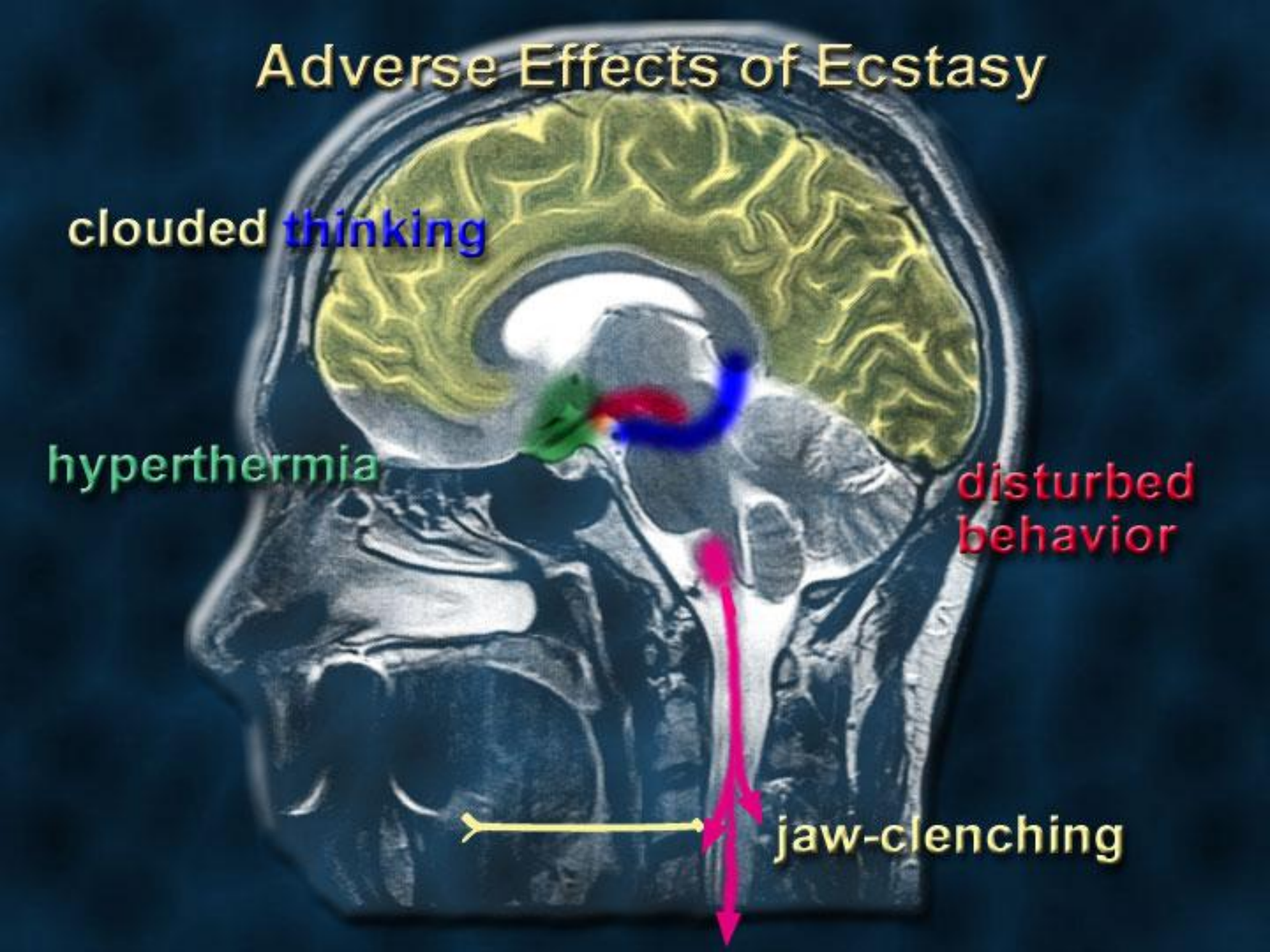



The Serotonin Neuron
serotonin
serotonin receptor

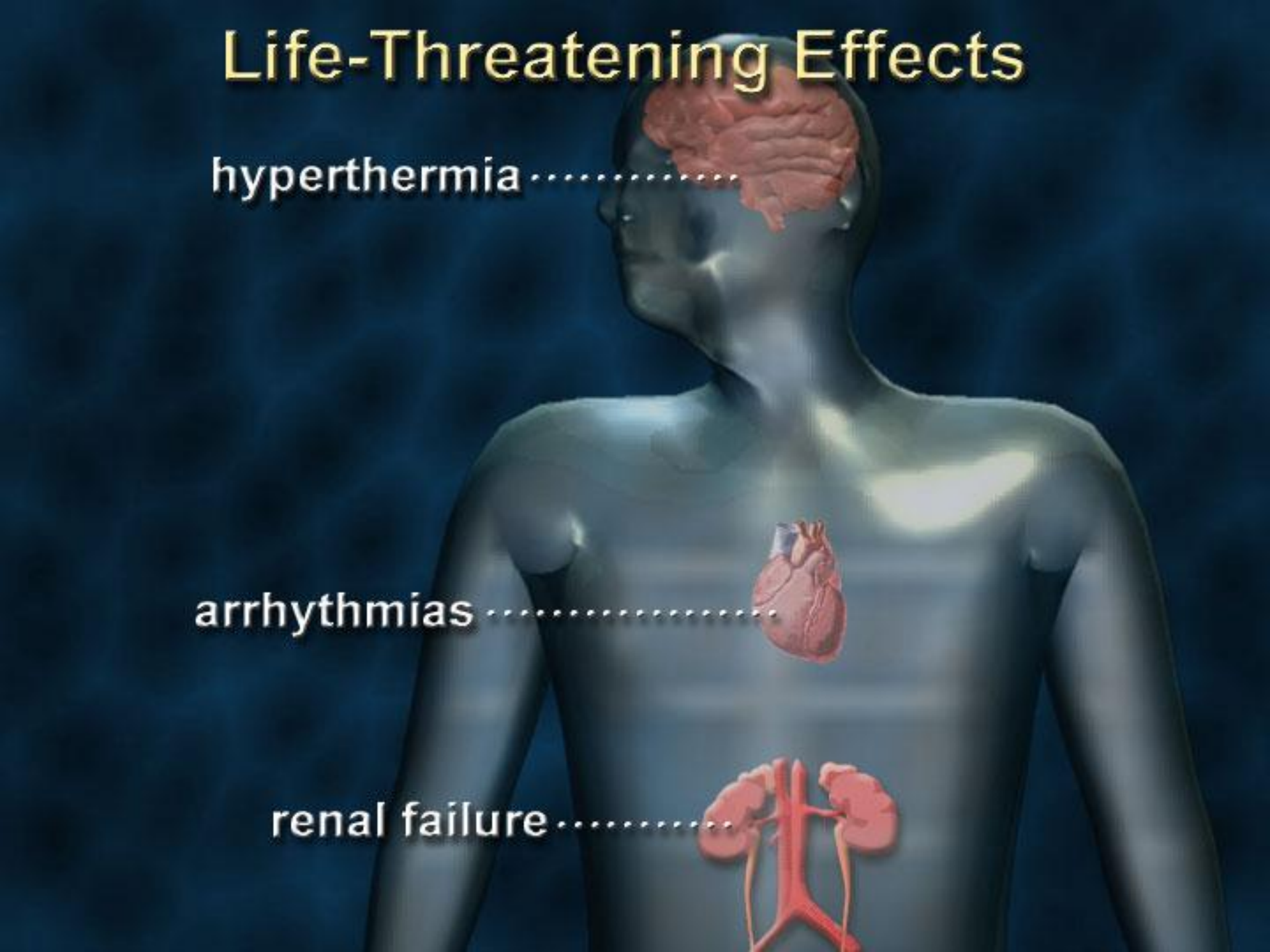

The Serotonin Neuron
transporter


Ecstasy

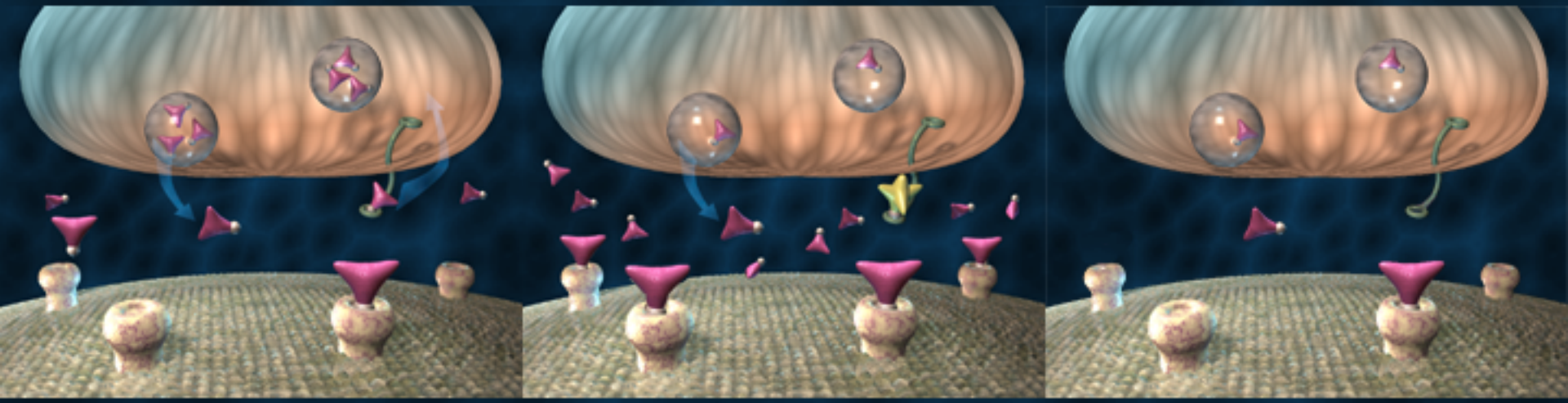

Acute Effects of Ecstasy
heightened perceptions
stimulation
reduced appetite
elevated mood


Adverse Effects of Ecstasy
clouded thinking
hyperthermia
disturbed behavior
jaw-clenching

Life-Threatening Effects



Short Term Effects after Ecstasy is Gone



Normal

During Ecstasy
elevated mood

After Ecstasy
depression-like
feelings, irritablilty

Long Term Effects of Ecstasy: Animal Studies Indicate Neurotoxicity

Brain chemistry changes

- serotonin reduced
- serotonin metabolites reduced

Brain structure changes

- serotonin transporters reduced
- serotonin terminals degenerate

Serotonin Present in Cerebral Cortex Neurons

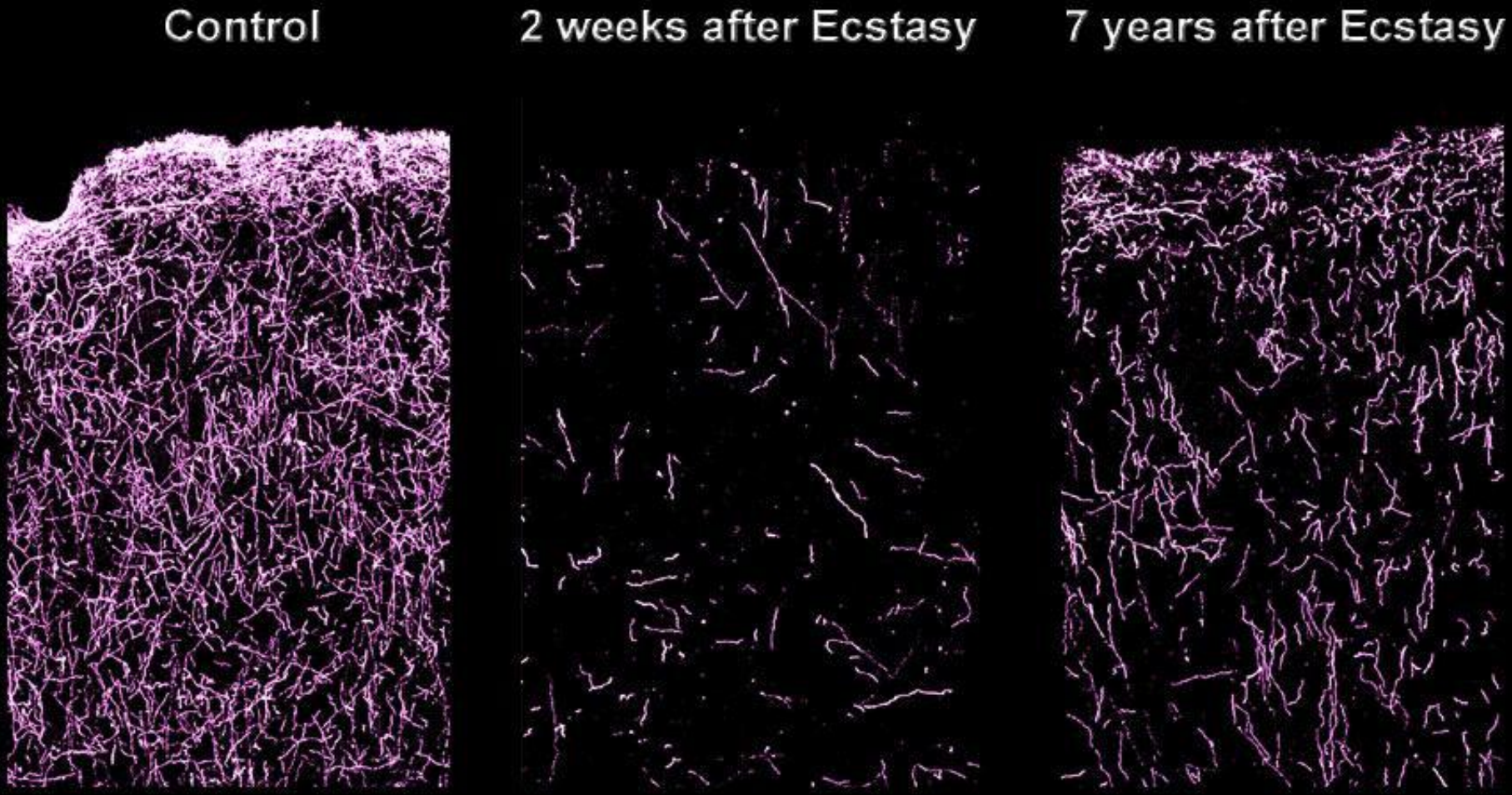


Image courtesy of Dr. GA Ricaurte, Johns Hopkins University Bloomberg School of Medicine

Ecstasy Causes Degeneration of Serotonin Nerve Terminals

Ecstasy May Damage Brain Areas Controlling Memory